

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

AMPEX CORPORATION,)	
)	
Plaintiff,)	
)	
v.)	C.A. No. 04-1373-KAJ
)	
EASTMAN KODAK COMPANY,)	
ALTEK CORPORATION and CHINON)	
INDUSTRIES, INC.,)	
)	
Defendants.)	

JOINT CLAIM CONSTRUCTION CHART

Pursuant to Paragraphs 11 & 12 of this Court's Scheduling Order, the parties hereby submit this Joint Claim Construction Chart containing their proposed constructions of the disputed claim terms and citations to intrinsic evidence. Exhibits A-G attached to the Joint Claim Construction Chart contain the patent-in-suit, U.S. Patent No. 4,821,121, and the cited intrinsic evidence.

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May 22, 2006
Ampex Corporation v. Eastman Kodak Company, et al. (C.A. No. 04-1373 (KAJ))

JOINT CLAIM CONSTRUCTION CHART FOR U.S. PATENT NO. 4,821,121

		Claim Term(s) Or Phrase(s)	Plaintiff’s Proposed Construction	Plaintiff’s Citations To The Intrinsic Evidence	Defendants’ Proposed Construction	Defendants’ Citations To The Intrinsic Evidence
1.	D	video (all claims) (“video image(s)”; “video pixel data”; “video data”; “video still store”)	Ampex contends that “video” should be construed in the context of the phrases appearing in the claims as discussed at Constructions 2., 3., and 4.	See Construction 3. citations	A series of related electronic images created for rapid display to allow the appearance of movement	E.g., Col. 6:23-24 (claim 7) (“An apparatus for storing video pixel data representing video images”) Col. 1:11-12 (“[t]he invention relates to a digital electronic still store for broadcast television signals...”) Col. 1:23-25 (“it is common to insert a selected still store image depicting a news event in the upper left hand corner of a live studio image...”) Col. 2:65- Col. 3:1 (“video input circuit 12 may be another electronic still store system, a TV camera, or some other source of video data from which one or more frames of a video image may be captured.”) Col. 1:15-16 (“digital electronic still store video display systems store a plurality of frames of video images...”) Col. 1:44-49 (describing a prior art reference, “video images on a television display.”) Col. 3:24-29 (“Conventionally, the chrominance data has half the spatial

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						<p>resolution of the luminance data in the horizontal dimension so that data is produced in a repetitive 4 byte luminance/chrominance component sequence of L1, CR1, CB1, L2--L3, CR3, CB3, L4 and so forth.”)</p> <p>Col. 3:57-58 (the single embodiment disclosed in the specification noting that NTSC frames of data represent video data)</p> <p>Col. 4:34-36 (the single embodiment disclosed in the specification describing an output processor as “a conventional video signal output processor, for forming a television signal in a standard format...”)</p> <p>Col. 5:8-13 (claim 1) (“[A]n image store means for retrievably storing therein a plurality of image frame copies of video frames, the image frame copies comprising data representing full spatial resolution images and corresponding data representing reduced spatial resolution images of the video frames”)</p>
2.	P	<i>video pixel data</i> (claims 7, 8, 11, 13-15); <i>video data</i> (claims 8, 10, 14)	“Video pixel data” means data representing picture elements (“pixels”) of a video image. “Video data” means video pixel data or other data representing a video image.	<i>See</i> Construction 3. citations	<u>video data</u> is digital numerical information defining an image that has been derived from, or forms a part of, a series of related electronic images created for rapid display to allow the appearance of movement	Col. 3:19-24 (“The input AD 14 receives the video signal from the video input 12 and converts the video signal to the digital sampled data form in which each pixel of video data is represented by three eight bit data bytes defining respectively luminance, red chrominance and blue chrominance components.”)

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					video pixel data is digital numerical information defining picture elements (pixels) of an image that has been derived from, or forms a part of, a series of related electronic images created for rapid display to allow the appearance of movement	
3.	P	video image(s) (claims 7, 8, 10, 14)	A "video image" is an electronic signal representation of visual information displayable in visual form on a monitor or other display device. Generally, a video image may represent a still image or a moving image. The video images referred to in the '121 claims are still video images.	'121 patent: <u>Title</u> ("Electronic Still Store ..."); <u>Abstract</u> (including: "[E]lectronic still store system stores and selectively outputs video image data defining a plurality of signal frame still images."); <u>Figure</u> (depicting "Video Input" as component of the patented system); <u>Background of the Invention</u> : 1:11-43 (including: "Digital electronic still store video display systems store a plurality of frames of video images on ... magnetic disk storage. ... The still store image can ... be combined with a second image to create a combined video image."), 50-54 ("U.S. Patent No. 4,302,776, "Digital Still Picture Storage System With Size Change Facility", to Taylor et al discloses a still store system in which multiple images may be ... simultaneous[ly] display[ed] as discussed above."); <u>Summary of the Invention</u> : 1:64-2:2 (including: "The [electronic still store] system includes an image store for storing therein a plurality of frames of video images"), 2:20-25 (describing that the electronic still store system may include "a video input, ..., a	Electronic signal representation of visual information that is one of a series of related electronic images created for rapid display to allow the appearance of movement	Col. 1:15-19 ("Digital electronic still store video display systems store a plurality of frames of video images on relatively low cost magnetic disk storage. Any selected one of the stored image frames may then be communicated to a frame store...") Col. 2:1-2 ("The system includes an image store for storing therein a plurality of frames of video images...") Col. 2:22 ("...a monitor for viewing output video images...") Col. 2: 65-Col. 3:1 ("The video input circuit 12 may be another electronic still store system, a TV camera, or some other source of video data from which one or more frames of a video image may be captured.") Col. 3:47-48 ("a frame of a video image") Col. 3:58-63 ("Because of the two dimensional nature of a video image a quarter size image defined by video data

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			monitor for viewing output video images, and an output digital-to-analog converter coupled to convert the output video images ... to an analog form”), 44-45 (“Using this system an operator may rapidly scan many still frame images ...”); <u>Detailed Description</u> : 2:65-3:34 (including: “The video input circuit 12 may be another electronic still store system, a TV camera, or some other source of video data from which one or more frames of a video image may be captured. In the preferred embodiment ..., the video signal is processed in component form. ... The input [analog to digital converter] receives the video signal from the video input 12 and converts the video signal to the digital sampled data form ...”), 3:44-67 (“A frame store ... , is coupled ... to receive video data representing a frame of a video image from either [an input analog to digital converter] or from a multiple frame image store Because of the two dimensional nature of a video image a quarter size image defined by video data having one-fourth the spatial resolution of a full size image ... requires one-sixteenth the storage capacity....”); 4:2-7 (“Size reducer 26 is operable to receive video data from frame store 22 to convert the video data to a quarter spatial resolution copy thereof,”), 16-19 (“As a new frame of video data is transferred from frame store 22 to disk store 24, ... both the full resolution and the quarter resolution copy are transferred.”), 28-40		having one-fourth the spatial resolution of a full size image requires one-sixteenth the storage capacity of a full size, full spatial resolution image.”)

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			<p>(including: "During system 10 operation frame store 22 repetitively accesses stored video data to generate a continuous stream of output video data frames representing the stored image."), Claims 1-15</p> <p><i>Prosecution History:</i> Original Application Claims (e.g., Claim 1 ("... frames of video images ..."), Claim 6 ("... analog video signal ..."), and Claim 11 ("... video still store system ...")); 2/4/85 Amendment, p. 3 (<u>Paper 4</u>) (defining "frames of video images" as "either full resolution frames or reduced resolution frames but not the combination of the two"); 2/24/87 Prelim. Amendment, pp. 5-12 (<u>Paper 25</u>) (e.g., Claim 2 ("... video frames ..."), Claim 7 ("... a video input ..."), and Claim 16 ("... storing video images ..."))</p> <p><i>Cited References:</i> '776 patent, Fig. 21, 1:9-14 (including: "It is known to store still pictures (e.g., photographic slides) by using a television camera to convert the still photograph to a standard television format which is then stored on a suitable storage medium."), 29-34 ("According to the invention there is ... a digital still picture storage system for storing ... video frames comprising ... storage means for capturing a frame of video information in digital form"), 2:24-35, 3:63-66 ("[T]o assemble a sequence of still pictures ... into a television programme, it is necessary to identify each ... photograph[] held within the library system"), 4:21-36 (including: "[T]he picture library recording system ... has been</p>		

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			considered as storing still pictures ... the system can be adapted to capture moving pictures”; “When making a still shot from a moving shot, ..., it is necessary to ‘stop motion’ between fields”), 51-57 (including: “Incoming video which may be from a still or moving picture ... is passed to analogue to digital converter (ADC) if not already in digital form.”), 5:23-26, 12:44-46 (“[T]he system described would be suitable for NTSC (or for PAL or SECAM) modified as required to handle that type of T.V. format.”); Boyd article; U.S. Patent 4,152,722, 1:9-14 (“This invention relates to ... a system for retrieving a part of a graphic information such as a map recorded on a recording medium in reduced scale and displaying the retrieved part thereof in a display device in enlarged scale.”); EP 0 051 305 A1, Figs. 1-3, 10, 1:10-13 (“[A] picture information file device has been proposed which uses a 2-dimension scanning device utilizing photoelectric conversion techniques with a laser beam or CCD elements.”), 5:1-4 (“[W]hen ... set on an original table 2, the original is subjected to 2-dimensional scanning ... for reading the picture information.”), 5:23-29 (“Picture information 9 such as a document is photo-electrically converted by 2-dimensional scanning The photoelectrically converted picture information (video signal) is supplied through the main control device 1 to a display device 13 such as a CRT display,		

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			”), 9:23-30 (“[T]he 2-dimension scanning device 11 performs 2-dimension scanning and photoelectric conversion of the picture information such as a document set The line information ... is sequentially stored When picture information corresponding to one page is stored in the page buffer 21, the picture information is stored in the refresh memory 27 and is displayed at the display device 13”)		
4.	P	<i>video still store</i> (claim 12)	A “video still store” is a system capable of storing still video images.	See Construction 3. citations	A television production system that holds and outputs for display image data for individual video images	Col. 1:11-14 (“This invention relates to a digital electronic still store for broadcast television signals and more particularly to a still store providing a high speed multiimage scan or sort capability.”) ‘121 patent, Title (“Electronic Still Store With High Speed Sorting and Method of Operation”) Col. 1:51-54 (“Taylor et al discloses a still store system in which multiple images may be accessed and reduced in size for simultaneous display as discussed above.”) Col. 1:64-Col. 2:1 (“An electronic still store system in accordance with the invention rapidly generates and outputs for display to an operator a still image frame comprising a plurality of selectively positioned, reduce size images which may be simultaneously viewed for scanning or editing purposes.”)
5.	D	<i>data</i> (all claims)	“Data” is information, in any	See Construction 3. citations	Numerical information	Col. 1:17-21 (“Any selected one of the

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	(“image data”; “video data”; “video pixel data”)	form, representing a video image. <i>See also</i> Construction 2.			<p>stored images frames may then be communicated to a frame store from which data defining the image is repetitively read out to generate a continuously displayed television image”)</p> <p>Col. 3:8-11 (“[T]he video input 12 will include appropriate video signal decoding means to process video data received from sources that provide the data in an encoded form”)</p> <p>Col. 3:19-24 (“The input AD 14 receives the video signal from the video input 12 and converts the video signal to the digital sampled data form in which each pixel of video data is represented by three eight bit data bytes defining respectively luminance, red chrominance and blue chrominance components.”)</p> <p>Col. 3:47-48 (“video data representing a frame of a video image...”)</p> <p>Col. 4: 16-19 (“As a new frame of video data is transferred from frame store 22 to disk store 24 for more permanent storage, both the full resolution and the quarter resolution copy are transferred.”)</p> <p>Col. 4:1-7 (“A size reducer 26 is connected to be controlled by data from CPU 16 received over the system bus 20. Size reducer 26 is operable to receive video data from frame store 22 to convert the video data</p>

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						to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein.”)
6.	D	<i>data set(s)</i> (claims 12, 13, 15)	A set of data. (For “data,” <i>see</i> Construction 5.)	<i>Prosecution History</i> : 2/24/87 Prelim. Amendment, pp. 11-12 (<u>Paper 25</u>); 4/29/88 Amendment, pp. 13-16 (<u>Paper 28</u>); 10/7/88 Amendment, pp. 4-7 (<u>Paper 30</u>)	A data set is a group of numbers that collectively represents an image	Col. 8:60-61 (claim 13) (“a data set representing one of the plurality of full size images”) File History, Paper No. 28, at 21 (“multiple sets of second resolution pixel data are accessed from selected groups of memory locations in the second memory...to allow simultaneous read out and display of the multiple sets of data at the second resolution in a single composite mosaic”)
7.	D P D	<i>Said...; the...</i> <i>said video pixel data</i> (claim 7); <i>the video pixel data</i> (claims 8, 14); <i>the video data</i> (claim 10); <i>said image data sets</i> (claim 12); <i>the data sets</i> (claims 13, 15)	Data (or data sets) representing the same image as the antecedent data (or data sets).	<i>‘121 patent</i> : <u>Figure</u> (depicting flow from “Frame Store” or “Size Reducer” to “Disk Store”); <u>Summary of the Invention</u> : 2:1-5 (“[I]mage store for storing ... frames of video images with both a full ... resolution copy for full size video output and a reduced ... resolution copy for reduced size video output”), 2:29-31 (“The image store employed herein is a general purpose magnetic disk storage system as is currently used in general purpose digital computer systems.”); <u>Detailed Description</u> : 3:1-34 (including: “In the preferred embodiment of the electronic still store system 10, the video signal is processed in component form. ... Therefore, the video input 12 will include appropriate video signal decoding means to process video data received ... in an encoded form. ... [A]n input video signal provided by the video input circuit 12, which typically	The data that is first referenced in the claims. For example, the data in the random access memory, the data in the first store, the data supplied by an external source, or the data sets provided at a first resolution. This “said video pixel data” is the same data used to generate a reduced size image.	E.g., Col. 6:27-48 (claim 7) (random access memory means for storing said video pixel data from said random access memory...bulk memory means for receiving said video pixel data from said random access memory means...) E.g., Col. 6:53-63 (claim 8) (“random access memory means having an input port and an output port, for storing the video pixel data presented at the input port; said video pixel data representing the full size video image at a first resolution being stored in a first group of memory locations in said random access memory means; bulk storage memory for also storing the video pixel data...”) Col. 4:2-7 (“[D]ata from CPU 16 received over the system bus 20. Size reducer 26 is operable to receive video data from frame

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				includes video signal processing circuitry that prepares the signal for [A-D] conversion The A-D converter 14 converts the input video signal to a digital form which is suitable for handling and processing by digital circuitry.”), 4:16-27 (“As a new frame of video data is transferred ... to disk store 24 ..., both the full ... and the quarter resolution copy are transferred. ... It should be noted that disk store 24 is a general purpose magnetic disk storage”), Claims 1-15 <i>Prosecution History:</i> 2/24/87 Prelim. Amendment, pp. 6-13 (<u>Paper 25</u>); 1/4/88 Office Action (<u>Paper 26</u>); 4/29/88 Amendment, pp. 6-23 (<u>Paper 28</u>)		store 22 to convert the video data to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein.”) Col. 4: 16-19 (“As a new frame of video data is transferred from frame store 22 to disk store 24 for more permanent storage, both the full resolution and the quarter resolution copy are transferred.”) File History, Paper No. 26, at AX061679 (“‘video pixel data’ is indefinite because it is not clear if it refers back to the pixel data recited in lines 5 and 6.”) File History, Paper No. 28, at 7, 17 (“the claims in question have been amended to positively recite antecedents for the various terms”)
	D	<i>Said...image; the...image</i> (claim 11)	No construction necessary.		Same as above	Same as above
8.	D	<i>resolution</i> (claims 7, 8, 11, 13-15)	The size of the image, measured in picture elements (“pixels”) and/or lines.	‘121 patent: <u>Summary of the Invention</u> : 2:1-20 (“The system includes an image store for storing ... both a full spatial resolution copy for full size video output and a reduced spatial resolution copy for reduced size video output The system may further include an image size reducer coupled to produce a quarter size reduced spatial resolution image in response to a full resolution image stored by the frame store....”), 2:37-43 (including: “[O]utput	Size of the image or image data measured by the number of pixels across and the number of pixels down	Col. 4:19-24 (“Since the quarter resolution copy is represented by only one-sixteenth the data of a full resolution copy, the communication and storage of the quarter resolution copy imposes only a small burden on both system operating time and extra storage space requirement within disk store 24.”) Col. 4:2-7 (“Size reducer 26 is operable to receive video data from frame store 22 to

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				image formation time is approximately the 1/4 to 1/2 second required to transfer a single full size image instead of several seconds which would be required ... prior to resolution reduction and storage as a reduced size image.”); <u>Detailed Description:</u> 3:24-26 (“Conventionally, the chrominance data has half the spatial resolution of the luminance data”), 3:58-4:24 (including: “A quarter resolution image ... requires the equivalent storage of 30 lines of a full resolution image. ... Since the quarter resolution copy is represented by only one-sixteenth the data of a full resolution copy, the communication and storage ... imposes only a small burden on ... operating time and extra storage space”), 4:41-50 (including: “In ... editing or browsing mode, CPU 16 commands disk store 24 to output reduced resolution image data ... for viewing in one of 16 reduced size image positions ... as a mosaic which fits within a normal full size image.”) , 4:58-61 (“[O]nly an amount of data equivalent to one full size, full spatial resolution, image need be transferred from disk store 24 to define all 16 images.”), Claims 1-15		convert the video data to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein.”)
9.	P D	<i>corresponding</i> (claims 7, 10, 12, 13 and 15)	Having a working relationship. The use of “corresponding” in claim 12, and its use with “selected one(s)” in claim 7, and with “selectively accessing” in claims 13 and 15, taking	‘121 <i>patent</i> : <u>Title</u> (“... Still Store With High Speed Sorting ...”); <u>Abstract</u> (including: “[D]isplay of ... quarter sized images for scanning or sorting ... is facilitated by generating a quarter sized copy of each newly received image frame and storing both together on ... disk”); <u>Figure</u> ; <u>Background</u>	A “corresponding” reduced size image is one that relates to a full sized image in that it is a smaller (lower resolution) version of the full sized image.	E.g., Col. 6:28-31 (claim 7) (“one ... full size image[] at said first resolution and a corresponding reduced size version thereof at said second resolution”) Col. 7:36-38 (claim 10) (describing the storage of video data “representing the video

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		each claim as a whole, requires that a relationship be maintained between each full size image and the reduced size image generated from that full size image.	<u>of the Invention</u> : 1:13-14 (“[S]till store providing a high speed multiimage ... sort capability.”), 27-43 (including: “For example, ... an editor may wish to view and compare several images at the same time for the purpose of selecting those images which will be used in a television broadcast.”), 50-54 (“U.S. Patent No. 4,302,776 ... discloses a still store system in which multiple images may be accessed and reduced in size for simultaneous display as discussed above.”); <u>Summary of the Invention</u> : 1:64-2:20 (including: “An electronic still store system in accordance with the invention rapidly generates and outputs for display ... a plurality of selectively positioned, reduce size images which may be simultaneously viewed for scanning or editing purposes. The system includes an image store for storing ... frames of video images with both a full spatial resolution copy ... and a reduced spatial resolution copy ... of each image being stored,”), 2:32-45 (including: “A system operator may view the reduced size images simultaneously for rapid scanning of some or all of the stored images within the image store,”), 48-51 (“Because of the rapid response rate [it] becomes feasible [to] develop[] and output[] data frames containing multiple reduced size images on demand during a television broadcast.”); <u>Detailed Description</u> : 2:62-4:27 (describing components of the invention depicted in the Figure, including, in the preferred		images corresponding to the selected raster size.”) Col. 8:22-24 (claim 12) (“each of said reduced size image data sets corresponding to one of the full size image data sets”) Col. 8:52-55 (claim 13) (“second data sets representing a corresponding plurality of reduced size reproduction images at a second lower spatial resolution”) Col. 4:12-15 (“Hence, any time frame store 22 receives a video image frame that does not have a corresponding quarter resolution copy, the size reducer 26 may be used to make such a copy.”)

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			<p>embodiment: “The frame store 22 [that] ... contains initially or is expanded to contain, storage of video data representing a ... full size image, as well as a quarter resolution copy thereof. ... As a new frame of video data is transferred from frame store 22 to disk store 24 ..., both the full ... and the quarter resolution copy are transferred.”), 4:7-9 (“... corresponding ...”), 4:45-67 (including: “In ... editing or browsing mode, CPU 16 commands disk store 24 to output reduced resolution image data which is selectively positioned in frame store 22 [T]he 16 viewable images may be taken sequentially from disk store 24 starting with the selected image frame. This mode is useful when scanning all of the images stored by disk store 24.”), Claims 1-15</p> <p><i>Prosecution History:</i> Original Application Claims; 1/30/86 Amendment, pp. 11-12 (<u>Paper 13</u>); 4/29/88 Amendment, p. 19-22 (<u>Paper 28</u>)</p> <p><i>Cited References:</i> ‘776 patent, Fig. 21, 3:39-45 (“[T]he disc store may hold several hundred separate pictures and the problem of examining the contents ... in order to find a picture ... exists. It has already been described ... to include identification data to identify a particular picture held in storage.”), 3:53-4:11, 4:45-49 (“Although the selection of a desired picture actually displayed in ... a picture matrix ... or as one of a list of titles has been described as selected via the keyboard, it would also be</p>		

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				possible to select desired pictures by use of a light pen”), 12:23-43; Boyd article (including: “The Ident display overlays the true Picture number when using the “browse” feature, so that the various chosen Pictures may be easily identified.”)		
10.	D	<i>selective; selectively</i> (claims 7, 13, 14, 15)	“Selective” means characterized by selection. “Select” means chosen in preference to another or others.	<i>121 patent</i> : <u>Abstract</u> : (including “[S]ystem ... selectively outputs video image data”); <u>Background of the Invention</u> : 1:17 (“Any selected one ...”), 1:23-24 (“... a selected still store image ...”), 1:33 (“... for the purpose of selecting those images ...”), 1:46-47 (“... selectively position video images ...”); <u>Summary of the Invention</u> : 1:67 (“... selectively positioned ...”), 2:14-15 (“... selectively located ...”), 2:46 (“... lists of randomly selected image frames ...”); <u>Detailed Description</u> : 4:47 (“... selectively positioned ...”), 4:52 (“... starting with a selected image frame.”), Claims 1-15	The ability to choose (i.e., select) E.g., “Selectively generating” means that there is the ability to choose (i.e., select) whether to generate reduced size images. E.g., “Selective” transfer means that there is the ability to choose (i.e., select) whether to transfer reduced size images from the size reducer through random access memory to bulk storage.	E.g., Col. 6:41-45 (claim 7) (“means responsive to said random access memory means for selectively generating one of said corresponding reduced size versions from the respective full size image in said random access memory means”) E.g., Col. 8: 11-14 (claim 11) (“selectively transferring either the full size image or the reduced size image from said bulk storage memory into said random access memory”) Col. 4:7-15 (“when video data received from disk store 24 does not contain a corresponding quarter spatial resolution copy, size reducer 26 may be employed to generate a quarter spatial resolution copy for subsequent transfer to either frame store 22 or disk store 24. Hence, any time frame store 22 receives a video image frame that does not have a corresponding quarter resolution copy, the size reducer 26 may be used to make such a copy.”) Col. 1:46-47 (describing the prior art, “joysticks may be used to selectively position video images on a television

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						display.”) File History, Paper No. 28, at 7 (amending claim 18 to state “means for selectively generating one of said corresponding reduced size versions.”)
11.	P	<i>selected one(s)</i> (claim 7)	Refers to the image(s) chosen by the system for output from the bulk memory based upon a user's command. The use of “selected one(s)” with “corresponding” in claim 7, taking the claim as a whole, requires that a relationship be maintained between each full size image and the reduced size image generated from that full size image.	<i>See</i> Construction 9. citations <i>See also</i> Construction 10. regarding “selective”	“Selected one” refers to a single image that has been chosen. Neither this phrase nor the claim as a whole requires that “a relationship be maintained...”	Col. 4:45-50 (“In a second, editing or browsing mode, CPU 16 commands disk store 24 to output reduced resolution image data which is selectively positioned in frame store 22 for viewing in one of 16 reduced size image positions in a 4x4 array as a mosaic which fits within a normal full size image.”) ‘121 patent, Abstract (“An electronic still store system stores and selectively outputs video image data defining a plurality of signal frame still images.”)
12.	P	<i>presenting selected groups of video data</i> (claim 8, 14)	Presenting data for selected images to the random access memory during the operation of the apparatus. The use of this phrase with “selective transfer” in claims 8 and 14, taking each claim as a whole, requires that a relationship be maintained between each full size image and the reduced size image generated from that full size	<i>See</i> Construction 9. citations <i>See also</i> Construction 10. regarding “selective”	Providing multiple sets of “video data” that have been chosen Neither this phrase nor the claim as a whole requires that “a relationship be maintained...”	<i>See</i> intrinsic evidence cited for “video data”

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			image.			
13.	P	<i>selective(ly) transfer(ring)</i> (claims 8, 10, 11, 14); <i>selectively accessing</i> (claims 13, 15)	A transfer (or access) characterized by a selection. (<i>See also</i> Construction 35.). The use of “selective transfer” with “presenting selected groups of video data” in claims 8 and 14, the use of “selectively transferring” in claims 10 and 11; and the use of “selectively accessing” with “corresponding” in claims 13 and 15, taking each claim as a whole, requires that a relationship be maintained between each full size image and the reduced size image generated from that full size image.	<i>See</i> Construction 9. citations <i>See also</i> Construction 10. regarding “selective”	<i>See</i> “selective; selectively” Neither this phrase nor the claim as a whole requires that “a relationship be maintained...”	<i>See</i> intrinsic evidence cited for “selective; selectively”
14.	P	<i>succession of full size images; successive full size images</i> (claim 7)	A plurality of full size images that are each processed in the manner claimed.	<i>The '121 patent generally</i> , including: <u>Title</u> ; <u>Abstract</u> (including: “[S]ystem stores and selectively outputs ... data defining a plurality of signal frame still images.”); <u>Figure</u> (depicting “Video Input” flowing to “Frame Store” that interfaces with “Size Reducer”); <u>Background of the Invention</u> : 1:15-17 (“Digital electronic still store video display systems store a plurality of frames of video images on ... disk storage.”), 27-28 (“The disk store is capable of storing a large library of single frame images “);	A series of “full size” sets of “video pixel data”	<i>See</i> intrinsic evidence cited for “pixel data” and “full size”

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			<p><u>Summary of the Invention:</u> 2:1-16 (including: “[I]mage store for storing therein a plurality of frames of video images with both a full spatial resolution copy ... and a reduced spatial resolution copy”); <u>Detailed Description:</u> 2:65-3:1 (“The video input circuit 12 may be ... some ... source of video data from which one or more frames of a video image may be captured.”), 3:65-68 (“[F]rame store 22 ... contains ... storage of video data representing a full resolution full size image, as well as a quarter resolution copy thereof.”), 4:16-19 (“As a new frame of video data is transferred from frame store 22 to disk store 24 ... both the full resolution and the quarter resolution are transferred.”), 4:41-44 (“When operating in a first, ... mode, frame store 22 receives a full resolution frame of video data from disk store”), Claims 1-15</p> <p><u>Prosecution History:</u> 2/24/87 Prelim. Amendment, pp. 6-7, 12-13 (<u>Paper 25</u>); 1/4/88 Office Action (<u>Paper 26</u>); 4/29/88 Amendment, pp. 6-7, 17-23 (<u>Paper 28</u>); 10/7/88 Amendment, pp. 8-13 (<u>Paper 30</u>)</p> <p><u>Cited References:</u> ‘776 patent, 1:9-14 (“It is known to store still pictures (e.g., photographic slides)”), 1:29-34 (“According to the invention there is ... a digital still picture storage system for storing a plurality of video frames comprising ... frame storage means for capturing a frame of video information ..., non-real time storage means for receiving and storing digital data</p>		

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			”), 2:24-25 (“[T]he recording system includes a camera 12 for receiving an image of slide 10.”), 4:21-23 (“[T]he picture library recording system ... has been considered as storing still pictures themselves taken from still pictures (e.g., slides)”)		
15.	P D	<i>full size image(s)</i> (claims 7, 8, 11, 12, 13, 15); <i>full size video image</i> (claims 8, 14); <i>video image normally occupying a raster of selected vertical and horizontal size</i> (claim 10)	The larger of the two sizes of image required by the claim.	<i>See</i> Construction 14. citations <i>Also: ‘121 Patent: Detailed Description:</i> 3:55-57 (“The storage capacity provided by presently available 64K memory chips enables storing up to 750 lines of video data.”) <i>Prosecution History:</i> 2/4/85 Amendment, pp. 3-4 (Paper 4); 1/30/86 Amendment, pp. 10-12 (Paper 13) <i>Cited References:</i> U.S. Patent 4,152,722	An image that is the same size (resolution) as the television display and therefore occupies the full screen of the television display, but no more.	Col. 2:1-8 (“The system includes an image store for storing therein a plurality of frames of video images with both a full spatial resolution copy for full size video output and a reduced spatial resolution copy for reduced size video output of each image being stored, and a frame store which is operable in a first mode to receive from the image store, store and repetitively generate a full spatial resolution output image frame.”) Col. 2:40-43 (“[A] single full size image instead of the several seconds which would be required to transfer 16 full size images prior to resolution reduction and storage as a reduced size image.”) Col. 3:55-68 (“The storage capacity provided by presently available 64K memory chips enables storing up to 750 lines of video data. In any event, out of a 525 line NTSC frame of data only about 484 lines represent video data. Because of the two dimensional nature of a video image a quarter size image defined by video data having one-fourth the spatial resolution of a full size image requires one-sixteenth the storage capacity of a full size, full spatial

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						<p>resolution image. A quarter resolution image thus requires the equivalent storage of 30 lines of a full resolution image. In any event the frame store 22 either contains initially or is expanded to contain, storage of video data representing a full resolution full size image, as well as a quarter resolution copy thereof.”)</p> <p>Col. 4:41-44 (“When operating in a first, normal broadcast mode, frame store 22 receives a full resolution frame of video data from disk store 24 and outputs a continuous television image in digital data form in response thereto.”)</p> <p>Col. 4:45-50 (“In a second, editing or browsing mode, CPU 16 commands disk store 24 to output reduced resolution image data which is selectively positioned in frame store 22 for viewing in one of 16 reduced size image positions in a 4x4 array as a mosaic which fits within a normal full size image.”)</p>
16.	P D	<i>reduced size version</i> (claim 7); <i>reduced size image(s)</i> (claims 8, 11, 12, 14); <i>video image at a selected fractional-size of said selected raster size</i> (claim 10); <i>reduced size reproduction images</i> (claims 13, 15)	The smaller of the two sizes of image required by the claim, which is generated from the claimed full size image using a size reducer.	<i>The ‘121 patent</i> generally, including: <u>Title</u> ; <u>Abstract</u> (including: “[G]enerating a quarter sized copy of each ... image frame The quarter size image can then be recalled directly for a multi-image scan or sort”; <u>Figure</u> (depicting a “Video Input” flowing to “Frame Store” that interfaces with “Size Reducer”); <u>Background of the Invention</u> : 1:27-30 (“[S]toring a large library of single frame images and it is often desirable to	An image that is generated from, and smaller in size (resolution) than, the full size image	<p>Col. 2:17-20 (“The system may further include an image size reducer coupled to produce a quarter size reduced spatial resolution image in response to a full resolution image stored by the frame store...”)</p> <p>Col. 2:37-39 (“Because the images are read from the image store in reduced size and</p>

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			<p>generate a reduced size multiple image picture"); <u>Summary of the Invention</u>: 2:1-20 ("The system includes ... storing ... both a full spatial resolution copy ... and a reduced spatial resolution copy ... of each image being stored The system may further include an image size reducer coupled to produce a quarter size ... image in response to a full ... image stored by the frame store,") , 2:32-51 (including: "[A]n array of 16 reduced size images ... output as a single image frame."); <u>Detailed Description</u>: 2:62-65 ("[R]apidly assembling as a single image frame an array of reduced size images"), 3:65-68 ("[F]rame store ... contains ... video data representing a ... full size image, as well as a quarter resolution copy thereof."), 4:1-7 ("Size reducer 26 is operable to receive video data from frame store 22 to convert the video data to a quarter spatial resolution copy thereof,"), 4:45-63 (including "[O]utput reduced resolution image data ... in one of 16 reduced size image positions ... which fits within a normal full size image."), Claims 1-15</p> <p><i>Prosecution History</i>: 2/4/85 Amendment, pp. 3-4 (<u>Paper 4</u>) (defining "frame" as "either a full or reduced spatial image but not both"); 1/30/86 Amendment, pp. 10-12 (<u>Paper 13</u>); 2/24/87 Prelim. Amendment, pp. 12-13 (<u>Paper 25</u>); 4/29/88 Amendment, pp. 17-23 (<u>Paper 28</u>); 10/7/88 Amendment, pp. 8-13 (<u>Paper 30</u>)</p>		<p>spatial resolution,...")</p> <p>Col. 3:55-68 ("The storage capacity provided by presently available 64K memory chips enables storing up to 750 lines of video data. In any event, out of a 525 line NTSC frame of data only about 484 lines represent video data. Because of the two dimensional nature of a video image a quarter size image defined by video data having one-fourth the spatial resolution of a full size image requires one-sixteenth the storage capacity of a full size, full spatial resolution image. A quarter resolution image thus requires the equivalent storage of 30 lines of a full resolution image. In any event the frame store 22 either contains initially or is expanded to contain, storage of video data representing a full resolution full size image, as well as a quarter resolution copy thereof")</p> <p>Col. 4:1-7 ("A size reducer 26 is connected to be controlled by data from CPU 16 received over the system bus 20. Size reducer 26 is operable to receive video data from frame store 22 to convert the video data to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein.")</p>

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17.	<p>P <i>random access memory means for storing video pixel data representing one of a succession of full size images ... and a corresponding reduced size version thereof....</i> (claim 7)</p> <p><i>random access memory means ... for storing the video pixel data said video pixel data representing the full size video image ... being stored in a first group of memory locations in said random access memory means.... supplying said reduced size image ... back to said random access memory means in a second group of memory locations therein....</i> (claims 8, 14)</p> <p><i>a first store for receiving video data for storage ... said first store having a capacity for storing the video data representing the video image corresponding to the selected raster size simultaneously together with the video data ... representing said reproduction of the video image at the selected fractional-size....</i> (claim 10)</p> <p><i>storing the reduced video pixel data representing the reduced size image in additional storage locations in said random access memory along with the full video pixel data</i> (claim 11)</p> <p><i>a memory for simultaneous storage of one of said full size image data sets and a corresponding one of said reduced size image data sets</i> (claim 12)</p>	<p>Claim 7, element 1, claims 8 and 14, elements 1, 2 and 4, claim 10, element 2, claim 11, element 3, and claim 12, element 3, including their interaction with other claim elements, taking each claim as a whole, require that video pixel data (or “video data” or “data sets”) representing each full size image and video pixel data (or “video data” or “data sets”) representing its corresponding reduced size image must be stored in the random access memory (or “first store” or “memory”) simultaneously (<i>i.e.</i>, at the same time — <i>see</i> Construction 32.).</p>	<p><i>‘121 patent: Figure</i> (depicting flow from “Video Input” to “Frame Store” to “Size Reducer” and back to “Frame Store”); <i>Background of the Invention:</i> 1:11-61 (describing the prior art method of browsing where “each of the ... images ... must first be read from the disk store as full size images and then reduced for insertion into the multi-image display”); <i>Detailed Description:</i> 3:44-68 (including: “Frame store 22 is a random access store ... capable of storing more data than is required for a single video image frame. ... [T]he frame store ... contains ... video data representing a full resolution full size image, as well as a quarter resolution copy thereof.”) 4:1-7 (including: “Size reducer 26 is operable to ... communicate the quarter resolution copy back to frame store 22 for storage therein.”), 4:16-19 (“As a new frame of video data is transferred ... for ... storage [in disk store], both the full resolution and the quarter resolution copy are transferred.”), 4:28-31, 4:41-44, Claims 1-15</p> <p><i>Prosecution History:</i> 1/30/86 Amendment, pp. 10-12 (<i>Paper 13</i>) (including: “The Boyd system does not teach the use of a frame store that is capable of storing both a full ... and a corresponding reduced ... image frame at the same time.”); 11/20/86 Amendment (<i>Paper 17</i>); 2/3/87 Interview Summary (<i>Paper 20</i>); 2/3/87 Advisory Action (<i>Paper 21</i>); 2/24/87 Prelim. Amendment, pp. 12-13 (<i>Paper 25</i>); 7/22/88 Office Action (<i>Paper</i></p>	<p>Random access memory means is random access memory.</p> <p>Claims 10 and 12 specifically describe storing full and reduced size images in the random access memory “simultaneously” and claim 11 specifically describes storing the reduced size images in random access memory “along with” the full size image.</p> <p>Claims 7, 8, and 14 do not recite this requirement. Neither the language cited from claims 7, 8 and 14 nor “each claim as a whole” requires “that video pixel data ... representing each full size image and video pixel data ... representing its corresponding reduced size image must be stored in the random access memory simultaneously....”</p>	<p>Col. 7:42-49 (claim 10) (“said first store having a capacity for storing the video data representing the video image corresponding to the selected raster size simultaneously together with the video data supplied by said video image size reducer representing said reproduction of the video image at the selected fractional-size.”)</p> <p>Col. 8:5-8 (claim 11) (“storing the reduced video pixel data representing the reduced size image in additional storage locations in said random access memory along with the full video pixel data.”)</p> <p>Col. 8:25-27 (claim 12) (“[A] memory for simultaneous storage of one of said full size image data sets and a corresponding one of said reduced size image data sets.”)</p> <p>Col. 6:20-22 (claim 6) (“wherein said image store stores the reduced size image data set along with the previously stored corresponding full size image data set.”)</p>

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				<p>29); 10/7/88 Amendment (Paper 30) (including: “[The invention] returns the reduced size image ... to the frame store for storage thereof simultaneously with the corresponding full size image.”; “Taylor et al fails to store both the full size image <u>and</u> its reduced size version in his frame store as described and claimed by applicant”; “Claims ... are variously amended herewith to further clarify the language ... over ... Taylor et al. Claim 18 recites inter alia; a ‘random access memory means for ... storing video pixel data representing ... full size images ... and a corresponding reduced size version ...’”; “Taylor et al fails to teach the above features of storing both image sizes simultaneously in the [RAM],”)</p> <p><i>Cited References:</i> ‘776 patent, Figs. 15, 16, 18, 19, 21, 1:41-42, 3:5-7, 3: 22-35, 3:54-60, 4:45-49, 9:39-10:16, 11:9-47, 12:23-43</p>		
18.	P	<p><i>outputting upon a user's command ... selected ones of the corresponding reduced size versions....</i> (claim 7)</p> <p><i>means for selectively transferring ... video data representing a plurality of reproductions at the selected fractional-size....</i> (claim 10)</p> <p><i>said memory further supplying as an output image ... the plurality of reduced size image data sets arranged at different locations within the output image....</i> (claim 12)</p> <p><i>selectively accessing ... a data set</i></p>	The quoted portions of claims 7, 10, 12, 13 and 15, taking each claim as a whole, require that when the applicable mode of operation is commanded, selected or activated, the plurality of reduced size images are automatically output, transferred, accessed or retrieved.	See Construction 26. citations	<p>Other than individual terms within each of these elements that are separately construed herein, these elements do not require further construction.</p> <p>Neither the cited claim language nor “each claim as a whole” requires “that when the applicable mode of operation is commanded, selected or activated, the plurality of reduced size</p>	

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		<p><i>representing one of the corresponding plurality of the reduced size reproduction images, simultaneously.</i> (claim 13)</p> <p><i>selectively accessing ... one of the sets of the corresponding plurality of the reduced size reproduction images simultaneously..... retrieving a plurality of reproduction images ... and outputting the stored plurality of retrieved images as a mosaic of reproduction images....</i> (claim 15)</p>			images are automatically output, transferred, accessed or retrieved.”	
19.	D	<i>either...or</i> (claims 7, 8, 10, 11, 12, 14)	<i>See Construction 20.</i>	<i>See Construction 20.</i>	<p>“Either ... or” means one or the other but not both.</p> <p>Outputting, transferring, or supplying either the full size image(s) or the reduced size image(s) means that the full size image(s) is/are output, transferred, or supplied, or the reduced size image(s) is/are output, transferred, or supplied, but not both.</p>	<p>E.g., Col. 6:36-39 (claim 7) (“for outputting upon a user's command, either a selected one of the successive full size images or selected ones of the corresponding reduced size versions thereof...”)</p> <p>E.g., Col. 8:11-14 (claim 11) (“selectively transferring either the full size image or the reduced size image from said bulk storage memory into said random access memory for further processing”)</p> <p>Col. 8:33-38 (claim 12) (“said memory being responsive to either the external source or the image store for storing said one of said full size image data sets, and for supplying to the image store both the stored one of said full size image data sets and the corresponding one of said reduced size image data sets”)</p> <p>Col. 2:5-16 (“[A] frame store which is operable in a first mode to receive from the image store, store and repetitively generate a</p>

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					<p>full spatial resolution output image frame. The frame store is operable in a second mode to receive from the image store and store a plurality of reduced spatial resolution image frames. The frame store is further operable in the second mode to repetitively generate an output image frame having an image from each of the plurality of reduced spatial resolution image frames selectively located at a different position within the output image frame.”)</p> <p>Col. 3:47-49 (“...to receive video data representing a frame of a video image from either input A-D 14 or from a multiple frame image store”)</p> <p>Col. 4:11-12 (“...transfer to either frame store or disk store...”)</p> <p>Col. 4:41-57 (“When operating in a first, normal broadcast mode, frame store 22 receives a full resolution frame of video data from disk store 24 and outputs a continuous television image in digital data form in response thereto. In a second, editing or browsing mode, CPU 16 commands disk store 24 to output reduced resolution image data which is selectively positioned in frame store 22 for viewing in one of 16 reduced size image positions in a 4.times.4 array as a mosaic which fits within a normal full size image. Under operator control, the 16 viewable images may be taken sequentially</p>

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					<p>from disk store 24 starting with a selected image frame. This mode is useful when scanning all of the images stored by disk store 24. Alternatively, the 16 images may be taken randomly from a list of stored images developed by the operator. This mode is especially useful when it is desired to compare certain images.”)</p> <p>Col. 5:37-48 (claim 3) (“The electronic still store system according to claim 1, wherein said frame store means includes a central processing unit, controlled by an operator in said first mode for selecting which of said full spatial resolution images stored in said image store means is to be retrieved from the image store means, and in said second mode for selecting which of said reduced spatial resolution images stored in said image store means are to be retrieved and stored in said frame store means, and further for selecting the different positions within a video frame at which each of said retrieved reduced spatial resolution images is stored.”)</p> <p>Col. 6:12-19 (claim 6) (“frame store means for storing one of said full size image data sets from either the external source or said image store, wherein if said image store does not supply a corresponding reduced size image data set, said frame store outputs a copy of said full size image data set to said size reducer, and receives in turn a</p>

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						corresponding reduced size image data set")
20.	P	<p><i>outputting upon a user's command, either a selected one of the successive full size images or selected ones of the corresponding reduced size versions thereof</i> (claim 7)</p> <p><i>selective transfer from said bulk storage memory ... into said random access memory means of either said full size image at said first resolution or said reduced size image at said second lower resolution</i> (claims 8, 14)</p> <p><i>selectively transferring from said second store ... to said first store either video data representing [one] of the plurality of video images corresponding to the selected raster size, or video data representing a plurality of reproductions at the selected fractional-size of said selected raster size</i> (claim 10)</p> <p><i>selectively transferring either the full size image or the reduced size image from said bulk storage memory into said random access memory for further processing</i> (claim 11)</p> <p><i>said memory further supplying as an output image either the plurality of reduced size image data sets arranged at different locations within the output image, or the full size image data set</i> (claim 12)</p>	<p>In the quoted portions of claims 7, 10 and 12, the claimed "outputting," "transferring" or "supplying" is of either a full size image or, alternatively, a plurality of reduced size images.</p> <p>In the quoted portions of claims 8, 11 and 14, the claimed "transfer" is of either a full size image or, alternatively, one or more reduced size images.</p>	<p>'121 patent: <u>Abstract</u>; <u>Background of the Invention</u>: 1:15-26; <u>Summary of the Invention</u>: 1:64-2:16 (describing that the frame store has a first mode to "receive from the image store, store and repetitively generate full spatial resolution output image frame" and a second mode to "receive from the image store and store a plurality of reduced spatial resolution image frames" and "generate an output image frame having an image from each of the plurality of reduced spatial resolution images frames ..."), 2:32-36, 2:44-45; <u>Detailed Description</u>: 2:62-64, 3:44-50 ("A frame store 22 which ... is coupled to ... receive video data ... from either input A-D 14 or from a multiple frame image store"), 3:65-68 ("[F]rame store 22 either contains initially or is expanded to contain, ... video data representing a ... full size image, as well as a quarter resolution copy thereof."), 4:7-12 (including: "[S]ize reducer 26 may be employed to generate a quarter spatial resolution copy for subsequent transfer to either frame store 22 or disk store 24."), 4:41-57 (describing operation of the patented invention where "in a first, ... mode, frame store 22 receives a full resolution frame of video data from disk store 24 and outputs a continuous television image in digital data form in response thereto" and "[i]n a second, ... mode, ... disk</p>	<p>"Either ... or" means one or the other but not both.</p> <p>Outputting, transferring, or supplying either the full size image(s) or the reduced size image(s) means that the full size image(s) is/are output, transferred, or supplied, or the reduced size image(s) is/are output, transferred, or supplied, but not both.</p>	<p>See citations to intrinsic evidence for "either...or"</p>

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				store 24 [] output[s] reduced resolution image data which is ... positioned in frame store 22 for viewing ... in a 4x4 array ...”), 4:64-67, Claims 1-15		
21.	P D	<i>direct</i> (claim 7); <i>directly</i> (claims 8, 10)	The claimed “direct” transfer path is not circuitous or roundabout, and the transferred data is not significantly processed after it has left the providing or sending structure and before it has reached the receiving structure.	<i>‘121 patent: Abstract</i> (including: “The quarter sized image can ... be recalled directly for a multi-image scan or sort function ... without the time delays associated with the retrieval and size reduction of 16 full size images.”); <i>Figure; Background of the Invention:</i> 1:11-61 (describing the prior art method of browsing where “each of the ... images ... must first be read from the disk store as full size images and then reduced for insertion into the multi-image display”); <i>Detailed Description:</i> Claims 1-15 <i>Prosecution History:</i> 7/22/88 Office Action (<i>Paper 29</i>); 10/7/88 Amendment (<i>Paper 30</i>) (including: “Taylor et al fails to describe ... both a reduced size and a full size image in his frame store ... in the manner of applicant. In fact, any size reduction, ..., is made on the full size image only at the time the latter is transferred from the disk storage ... to the frame store ... or from the frame store to the disc storage Applicant’s invention ... provides image reduction via his size reducer (26) coupled only to the frame store (22), and which receives the full size image only from the frame store whenever there is no reduced size image, and which then returns the reduced size image directly back to the frame store for storage thereof”; “...	A “direct transfer,” “directly receiving,” “transfer ... directly,” “providing ... directly,” means the transfer of data without intervening circuitry.	File History, Paper No. 30, at 11-12 (amending the claims to require the bulk memory to transfer the image data “directly back to the random access memory means, with no other circuit therebetween.”) <i>‘121 patent, Figure</i> (showing a bus connecting the processing unit (CPU) to system components and a connection between the disk store and the frame store that does not pass through the CPU or any other circuitry).

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				<p>Claims ... are variously amended herewith to further clarify ... over ... Taylor et al. Claim 18 recites inter alia ...; bulk memory means ... which transfers either size of the images directly back to the [RAM] means, with no other circuit therebetween; and means for generating the reduced images from the full size images and returning both directly back to the contents of the [RAM] means. Taylor et al fails to teach the above features of ..., the direct transfer of images between the disc storage and random access memory, or the transfer of images directly between the size reducer and only the random access memory.”)</p> <p><i>Cited References:</i> ‘776 patent, Figs. 15, 16, 18, 19, 21, 1:41-42, 3:5-7, 3: 22-35, 3:54-60, 4:45-49, 9:39-10:16, 11:9-47, 12:23-43; EP 0 051 305 A1, Fig. 10</p>		
22.	D	<i>responsive to</i> (claims 7, 8, 12, 14)	See Construction 23.	See Construction 23.	To be coupled to the random access memory so as to be able to receive data from the random access memory.	<p>Col. 8:33-47 (claim 12) (“said memory being responsive to either the external source or the image store for storing... said memory being responsive to the image store to store at different selected locations the plurality of reduced size image data sets... means responsive to said memory for displaying the output image as a raster scanned video display.”)</p> <p>Col. 4:2-4 (“size reducer is operable to receive video data from frame store to convert the video data...”)</p> <p>Col. 2:20-22 (“an analog-to-digital converter</p>

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						coupling the video input to the frame store”) Col. 2:22-24 (“[A]n output digital-to-analog converter coupled to convert the output video images from a digital form...”) Col. 3:44-49 (“A frame store...is coupled...to receive video data...from either input A-D or from a multiple frame image store implemented as a magnetic disk...”) File History, Paper No. 14 (rejecting pending claims 12 and 14, which required producing reduced size image data “in response to” the writing of the full size image data set into the frame store). File History, Paper No. 17, at 4 (canceling pending claims 12 and 14). File History, Paper Nos. 23-24 (abandoning pending application and filing a continuing application). File History, Paper No. 30, at 2 (proposing new claim language in which the size reducer is “responsive to” the random access memory).
23.	P	<i>means responsive to said random access memory means (claim 7); size reducing means responsive to said random access memory means (claims 8, 14) ; said memory being responsive to ... the external source ... for supplying to the image store [and]</i>	“Responsive” in the context of the quoted language means that the claimed operations are performed automatically under processor control, without	<i>See</i> Construction 26. citations, including: ‘121 patent: <u>Summary of the Invention</u> : 2:17-20 (“The system may further include an image size reducer coupled to produce a quarter size ... image in response to a full resolution image stored in the frame store,	<i>See</i> “responsive to”	<i>See</i> intrinsic evidence cited for “responsive to”

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	<i>being responsive to the image store to store</i> (claim 12)	the operator orchestrating each step.”) , 25-28 (“A [CPU] is connected to receive user commands ... and to control the other devices of the system in response thereto.”), 41-44 (contrasting the prior art browse method where “several seconds ... would be required to transfer 16 full size images prior to resolution reduction and storage as a reduced size image.”) <i>Prosecution History:</i> 1/30/86 Amendment, pp. 11-12 (<u>Paper 13</u>) (including: “Claims 12 and 14 have been amended such that the operation of the size reducer in producing the reduced size image data set ... is ‘in response’ to the writing of the full size image data set into the frame store. Boyd clearly does not teach this responsive use of the size reducer. ... [W]ith the Boyd system an operator would have to orchestrate each step. Thus the applicant believes that amended Claims 12 and 14 are patentably distinguishable over ... Boyd ...”; “Claim 15 has been added to more precisely claim the applicant’s inventive concept. ... Further the ‘frame store is operable such that ... said image store and said image store does not contain a corresponding reduced size image data set, said frame store outputs a copy of said full size image data set to said size reducer.’ This automatic use of the size reducer is clearly not taught by the Boyd publication. Again, this type of operation would require complete operator orchestration in the Boyd system. ... The applicant believes that Claim 15 is		

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				patentably distinguishable over the Boyd publication.”)		
24.	P	<i>selectively generating</i> (claim 7), <i>determines the selective transfer</i> (claim 14)	The claimed selectivity in the quoted language means that, without the operator orchestrating each step, the claimed means automatically determines whether to generate a reduced size version and generates it in those cases, and (for claim 14) transfers the reduced size image so generated to random access memory.	‘121 patent: <u>Abstract</u> (including: “The simultaneous display ... is facilitated by generating a quarter sized copy of each newly received image frame and storing both together”); <u>Figure</u> (depicting interface between the “CPU” and “Frame Store,” “Size Reducer,” and “Disk Store”); <u>Summary of the Invention</u> : 1:64-2:20 (describing an embodiment of the invention, including: “[A]n image size reducer coupled to produce a quarter size ... image in response to a full resolution image stored by the frame store,”); <u>Detailed Description</u> : 4:1-19 (including: “[S]ize reducer 26 is connected to be controlled by data from CPU 16 Size reducer 16 is operable to receive video data from frame store 22 to convert ... to a quarter spatial resolution copy ... and communicate the quarter resolution copy back to frame store 22”), 4:41-67 (describing operation of the invention, including: “In a ... browsing mode, CPU 16 commands disk store 24 to output reduced resolution image data ... [to] frame store 22 for viewing ... as a mosaic”), Claims 1-15 <i>Prosecution History</i> : 2/24/87 Prelim. Amendment, pp. 6-7, 12-13 (<u>Paper 25</u>); 1/4/88 Office Action (<u>Paper 26</u>); 4/29/88 Amendment, pp. 6-7, 16-22 (<u>Paper 28</u>) (including: “Applicant’s size reducer 26 is bidirectionally coupled only to his frame	See “selective; selectively”	See intrinsic evidence cited for “selective; selectively”

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				store 22, and is responsive to the frame store to supply a reduced size image at such time as only a full size image is stored in the frame store. In addition, Applicant's frame store 22 then supplies both the full size image and its corresponding reduced size image back to his disc store 24 for storage together."); 10/7/88 Amendment, p. 10 (<u>Paper 30</u>) See also Construction 10. regarding "selective" and Construction 26. regarding automatic aspect of selection process		
25.	P	<i>means responsive to said random access memory means for selectively generating one of said corresponding reduced size versions from the respective full size image in said random access memory means, and for transferring the video pixel data representing the corresponding reduced size version back to the contents of said random access memory means (claim 7)</i> <i>size reducing means responsive to said random access memory means for directly receiving said video pixel data stored in said random access memory means representing said full size image ... and for reducing said image to the reduced size image ... and for supplying said reduced size image ... directly back to said random access memory means in a second group of memory locations therein; control means coupled to said random access memory means ... and to said size reducing means, for causing said size</i>	Claim 7, element 3, claim 8, elements 4-5, and claim 10, element 1, including their interaction with other claim elements, taking each claim as a whole, require that the subject means (or "size reducing means" or "size reducer") transfer video pixel data (or "video data") representing images to, and receive such data from, only the claimed random access memory (or "first store").	'121 patent: <u>Abstract</u> (including "[G]enerating a quarter sized copy of each newly received image frame"); <u>Figure; Background of the Invention</u> : 1:11-61 (describing the prior art method of browsing where "each of the ... images ... must first be read from the disk store ... then reduced for insertion into the multi-image display"); <u>Detailed Description</u> : 3:44-4:24 (describing the frame store and size reducer of the invention where "[s]ize reducer 26 is operable to receive video data from frame store 22 ..., and communicate the quarter resolution copy back to frame store 22 for storage therein"), Claims 1-15 <u>Prosecution History</u> : 11/20/86 Amendment (<u>Paper 17</u>); 2/24/87 Prelim. Amendment, pp. 7-8 (<u>Paper 25</u>); 4/29/88 Amendment, p.19 (<u>Paper 28</u>) (including: "Applicant's size reducer 26 is bidirectionally coupled only to his frame store 22, and is responsive to the	Other than individual terms within each of these elements that are separately construed herein, these elements do not require further construction. Neither the cited language nor "each claim as a whole" requires "that the subject means ... transfer video pixel data ... representing images to, and receive such data from, only the claimed random access memory..."	Col. 4:9-12 ("size reducer 26 may be employed to generate a quarter spatial resolution copy for subsequent transfer to either frame store 22 or disk store 24.") '121 patent, Figure File History, Paper No. 17, at 2 ("Please approve the drawing change marked in green on the enclosed sketch"); and AX061666 (amended figure) Col. 6:23-26 (claim 7) ("An apparatus for storing video pixel data representing video images of a first resolution and, for each each [sic] of the images at said first resolution, a corresponding video image at a second resolution, comprising") Col. 6:49-52 (claim 8) ("An apparatus for storing video pixel data as at least one full size image at a first resolution, and at least

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	<p><i>reducing means to generate said reduced size image ... and to supply same to said random access memory means in said second group of memory locations....</i> (claim 8)</p> <p><i>a video image size reducer having an input for receiving video data representing a video image corresponding to the selected raster size and for generating video data representing a reproduction of said video image at a selected fractional-size of said selected raster size</i> (claim 10)</p>		<p>frame store to supply a reduced size image at such time as only a full size image is stored in the frame store. In addition, Applicant's frame store 22 then supplies both the full size image and its corresponding reduced size image back to his disc store 24 for storage together."); 7/22/88 Office Action (<u>Paper 29</u>); 10/7/88 Amendment (<u>Paper 30</u>) (including: "Taylor et al fails to describe ... both a reduced size and a full size image in his frame store ... in the manner of applicant. In fact, any size reduction, ..., is made on the full size image only at the time the latter is transferred from the disk storage ... to the frame store ... or from the frame store to the disc storage Applicant's invention ... provides image reduction via his size reducer (26) coupled only to the frame store (22), and which receives the full size image only from the frame store whenever there is no reduced size image, and which then returns the reduced size image directly back to the frame store for storage thereof"; "Claims ... are variously amended herewith to further clarify ... over ... Taylor et al. Claim 18 recites inter alia ...; bulk memory means ... which transfers either size of the images directly back to the [RAM] means, with no other circuit therebetween; and means for generating the reduced images from the full size images and returning both directly back to the contents of the [RAM] means. Taylor et al fails to teach the above features of ..., the direct transfer of images between the</p>		<p>one reduced size image thereof at a second lower resolution, comprising")</p> <p>Col. 7:30-34 (claim 10) ("A system for storing video data representing video images which are displayable as rasters of vertically distributed horizontal lines, each represented video image normally occupying a raster of selected vertical and horizontal size, the system comprising")</p>

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				disc storage and random access memory, or the transfer of images directly between the size reducer and only the random access memory.”)		
				<i>Cited References:</i> ‘776 patent, Figs. 15, 16, 18, 19, 21, 1:41-42, 3:5-7, 3: 22-35, 3:54-60, 4:45-49, 9:39-10:16, 11:9-47, 12:23-43		
26.	P	<p>Claim 7:</p> <p>“... random access memory means for storing</p> <p>“bulk memory means for receiving ... and for storing....</p> <p>“means responsive to said random access memory means for selectively generating ... and for transferring”</p> <p>Claims 8, 14:</p> <p>“... random access memory means ... for storing</p> <p>“bulk storage memory for ... storing....</p> <p>“size reducing means responsive to said random access memory means for ... receiving ... and for reducing ... and for supplying</p> <p>“control means coupled to said random access memory means, to said bulk storage memory and to said size reducing means, for causing ... and to supply ... and ... further causing the transfer... and for causing the</p>	<p>Claims 7-8, 10 and 14, each taken as a whole, including the quoted portions, require that data for the reduced size image is automatically generated from the full size image by the interaction between the size reducer and the random access memory (or “first store” or “memory”) prior to storage in the “bulk memory” (or “bulk storage memory,” “image store” or “second store”); and data representing the reduced size image is automatically generated and stored in the “bulk memory” (or “bulk storage memory,” “image store” or “second store”) each time that data representing the full size image is to be stored.</p>	<p>‘121 patent: <u>Title</u> (“... High Speed Sorting ...”); <u>Abstract</u> (including: “[G]enerating a quarter sized copy of each newly received image frame and storing both together on ... disk”); <u>Figure</u> (depicting flow from “Video Input” to “Frame Store,” which interfaces with the “Size Reducer,” and then flow from “Frame Store” to “Disk Store”); <u>Background of the Invention</u>: 1:13-14 (“[H]igh speed multiimage scan or sort capability.”), 27-43 (describing the prior art browse method where “images ... must first be read from the disk store ... then reduced” which “results in a delay of several seconds for the composite multi-image display”), 50-54 (“U.S. Patent No. 4,302,776, ... discloses ... multiple images ... accessed and reduced ... as discussed above.”); <u>Summary of the Invention</u>: 1:64-2:20 (describing the browse invention, including: “An electronic still store system in accordance with the invention rapidly generates and outputs for display ... a still image frame comprising a plurality of selectively positioned, reduce size images which may be simultaneously viewed for scanning or editing purposes”;</p>	<p>Other than individual terms within each of these elements that are separately construed herein, these elements do not require further construction.</p> <p>Neither the cited language nor the claims “each taken as a whole” requires “that data for the reduced size image is automatically generated from the full size image by the interaction between the size reducer and the random access memory ... prior to storage in the “bulk memory” ...; and data representing the reduced size image is automatically generated and stored in the “bulk memory” ...each time that data representing the full size image is to be stored.”</p>	<p>E.g., File History, Paper No. 28, at 6-7 (amending claim 7 to remove the words “prior to”).</p>

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	<p><i>selective transfer....</i></p> <p>Claim 10:</p> <p><i>"...a video image size reducer....</i></p> <p><i>"a first store for receiving....</i></p> <p><i>"a second store for receiving and storing ... said second store further storing</i></p> <p><i>"means for selectively transferring..."</i></p> <p>Claim 12:</p> <p><i>"an image store for storing ... and for storing</i></p> <p><i>"a memory for simultaneous storage</i></p> <p><i>"a size reducer means for receiving ... and for producing and returning to said memory....</i></p> <p><i>"said memory being responsive to ... the external source ... for storing ... and for supplying</i></p> <p><i>"said memory being responsive to the image store to store...."</i></p>		<p>"The system may further include an image size reducer coupled to produce a quarter size ... image in response to a full resolution image stored by the frame store"), 2:25-28 ("A [CPU] is connected ... to control the other devices of the system"), 32-45 ("In operation the system can rapidly assemble an array of 16 reduced size images for output as a single image frame. ... Because the images are read from the image store in reduced size ..., the output ... time is approximately the 1/4 to 1/2 second required ... instead of the several seconds ... required to transfer 16 full size images prior to resolution reduction and storage Using this system an operator may rapidly scan many still frame images which are stored by the image store"), 48-51 ("Because of the rapid response rate the system becomes feasible for development and outputting of data frames containing multiple reduced size images"); <u>Detailed Description</u>: 2:62-3:54 (describing input and frame store operations of the invention, including: "[A] digital electronic still store system 10 for rapidly assembling as a single image frame an array of reduced size images is shown including"; " [CPU] 16 formed from a Z80 microprocessor is connected to receive operator commands..."; "CPU 16 is connected for bidirection communication of commands and other data over a system bus"; "A frame store 22 which in the preferred embodiment is a random access memory, is coupled to receive mode control</p>		

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			<p>information from CPU 16 over system bus 20 and to receive video data representing a frame of a video image from ... input A-D 14"; Frame store 22 ... is capable of storing more data than is required for a single video frame image.") , 4:1-7 ("A size reducer 26 is connected to be controlled by data from CPU 16 Size reducer 26 is operable to receive video data from frame store 22 to convert the video data to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein."), 16-19 ("As a new frame of video data is transferred from frame store 22 to disk store 24 ..., both the full resolution and the quarter resolution copy are transferred."), 41-67 (describing output operations of the invention, including: "[B]rowsing mode, [where] CPU 16 commands disk store 24 to output reduced resolution image data ... as a mosaic"; "The 16 image assembly time is greatly reduced because only an amount of data equivalent to one full size, ..., image need be transferred from disk store 24 This is only one-sixteenth of the time that would conventionally be required"; and "... there has been shown and described above, a particular arrangement of an electronic still store system which can rapidly compose multiple image frame of data,"), Claims 1-15</p> <p><i>Prosecution History:</i> Original Application Claims; 12/21/84 Office Action, p. 4 (<u>Paper</u></p>		

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			<p>3) (including: “The apparent novelty of the claimed invention as disclosed seem to be as follows: ... 2) size reduction and production of the “frame” of video data is performed by the interaction between the size reducer and the frame store <u>prior</u> to storage in the image storage; 3) and the “frame” of video, containing both resolution copies, is non-selectively produced for all images that are stored.”); 2/4/85 Amendment, p. 4 (<u>Paper 4</u>); 1/30/86 Amendment, pp. 11-12 (<u>Paper 13</u>) (including: “Claims 12 and 14 have been amended such that the operation of the size reducer in producing the reduced size image data set ... is ‘in response’ to the writing of the full size image data set into the frame store. Boyd clearly does not teach this responsive use of the size reducer. ... [W]ith the Boyd system an operator would have to orchestrate each step. Thus the applicant believes that amended Claims 12 and 14 are patentably distinguishable over ... Boyd”; “Claim 15 has been added to more precisely claim the applicant’s inventive concept. ... Further the ‘frame store is operable such that ... said frame store outputs a copy of said full size image data set to said size reducer.’ This automatic use of the size reducer is clearly not taught by the Boyd publication. Again, this type of operation would require complete operator orchestration in the Boyd system. ... The applicant believes that Claim 15 is patentably distinguishable over the Boyd publication.”); 2/24/87 Prelim.</p>		

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			Amendment, pp. 5-13 (<u>Paper 25</u>) (including: "New claims 16 through 28 are in accord with the novelty identified by the Examiner in the first Office Action Based upon the content of the Hugh Boyd, Quantel reference, which teaches accessing from disk the entire full size picture before size reduction, can occur, these new claims are believed to be allowable. This is so because they teach storing a reduced image with the full size image each time a full sized image is to be stored from the frame buffer to the disk. This allows the user the option of retrieving the entire full size image or only the reduced size counterpart from disk. ... [A] major advantage over the Boyd, Quantel system in that access time for a frame comprised of one or more reduced images will be substantially shorter ... This is because ... Boyd, ... does not store a reduced image automatically with the full size counterpart each time a full size image in the frame buffer is to be stored on disk. Thus to access any particular reduced image, the entire full size image must be accessed and loaded into the size reducer. Clearly this takes more time than accessing only the data describing the reduced size image from the disk."; 4/29/88 Amendment, pp. 6-22 (<u>Paper 28</u>) (including: "Applicant's size reducer 26 is bidirectionally coupled only to his frame store 22, and is responsive to the frame store to supply a reduced size image at such time as only a full size image is stored in the		

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			frame store. In addition, Applicant's frame store 22 then supplies both the full size image and its corresponding reduced size image back to his disc store 24 for storage together. Subsequently, the full size images individually ... or any number of the selected plurality of the reduced size images are returned for storage in the frame store 22, whereupon such re-stored images can be repeatedly read out."); 10/7/88 Amendment (<u>Paper 30</u>) (including: "Taylor et al fails to describe ... both a reduced size and a full size image in his frame store ... in the manner of applicant. In fact, any size reduction, ..., is made on the full size image only at the time the latter is transferred from the disk storage ... to the frame store ... or from the frame store to the disc storage Applicant's invention ... provides image reduction via his size reducer (26) coupled only to the frame store (22), and which receives the full size image only from the frame store whenever there is no reduced size image, and which then returns the reduced size image directly back to the frame store for storage thereof"; "Claims ... are variously amended herewith to further clarify ... over ... Taylor et al. Claim 18 recites inter alia ...; bulk memory means ... which transfers either size of the images directly back to the [RAM] means, with no other circuit therebetween; and means for generating the reduced images from the full size images and returning both directly back to the contents of the [RAM]		

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			<p>means. Taylor et al fails to teach the above features of ..., the direct transfer of images between the disc storage and random access memory, or the transfer of images directly between the size reducer and only the random access memory.”)</p> <p><i>Cited References:</i> ‘776 patent, Fig. 21, 3:39-4:11 (“including: “The contents of the disc store may hold several hundred separate pictures and the problem of ... find[ing] a picture ... exists. It has already been described ... to include identification data to identify a particular picture held in storage. In the expanded arrangement of FIG. 3, the system is under control of computer 27 in dependence on control data fed from video display and keyboard unit 30. Thus ... it is convenient to use software control to achieve greater flexibility One facility effected by this present arrangement is ... to provide a matrix of miniature pictures displayed together on the screen. This `browse facility` displays the contents of the store in a series of `polyphoto` formats, whereupon ... miniature pictures are displayed at once on the CRT.”), 4:45-49 (“Although the selection of a desired picture actually displayed in ... a picture matrix ... or as one of a list of titles has been described as selected via the keyboard, it would also be possible to select desired pictures by use of a light pen,”) 12:23-43 (including: “It is possible to use a fixed degree of compression to generate a frame comprising</p>		

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				a number of stored pictures to provide a browse or polyphoto facility The pictures comprise a number of successive compressed images") ; Boyd article (including: "Browse. The preview facility has the ability to look through the contents of the disc by displaying 25 images at a time, This rolling list of pictures allows easy viewing to find a desired frame,")		
27.	P	<i>receiving and storing; generating; storing ... along with; storing both ...</i> (claim 11) <i>providing ...; generating ...; storing both ...</i> (claims 13, 15)	The recited steps must be automatically performed in the order recited in the claim, without the user orchestrating each step.	See Construction 26. citations	Other than individual terms within each of these elements that are separately construed herein, these elements do not require further construction. The recited actions are not required to be "automatically performed in the order recited in the claim, without the user orchestrating each step" <u>Receiving and storing</u> : acquiring and holding in memory <u>Generating</u> : creating <u>Storing</u> : holding in memory <u>Along with</u> : together <u>Storing both</u> : holding both <u>Providing</u> : giving	
28.	P	<i>storing both . . . in bulk storage memory</i> (claim 11); <i>storing both...</i> (claims 13, 15)	Both the full video pixel data and reduced video pixel data	See Construction 26. citations	Other than individual terms within each of these	

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			must be available (in random access memory, for claim 11) prior to their storage (in the bulk storage memory, for claim 11).		elements that are separately construed herein, these elements do not require further construction. The cited language does not require that "both the full video pixel data and reduced video pixel data must be available (in random access memory, for claim 11) prior to their storage (in the bulk storage memory, for claim 11)."	
29.	P D	<i>an input port and an output port</i> (claims 8 and 14)	A "port" is an interface between a communications channel and a unit of computer hardware. An "input port" is a port for inputting data into the claimed random access memory. An "output port" is a port for outputting data from the claimed random access memory.	'121 patent: <u>Figure</u> (depicting flow from "Input A/D" and "Disk Store" to "Frame Store" and from "Frame Store" to "Output A/D" and "Disk Store"); <u>Background of the Invention</u> : 1:17-21 ("Any selected one of the stored image frames may then be communicated to a frame store"); <u>Summary of the Invention</u> : 2:5-16 (describing operation of the frame store, including: "[F]rame store which is operable in a first mode to receive from the image store, ... a full ... output image frame."); <u>Detailed Description</u> : 3:44-68 (describing the frame store component of the system, including: "[F]rame store 22 ... is coupled to ... receive video data ... from a multiple frame image store"), 4:1-7 ("Size reducer 26 is operable to receive video data from	Random access memory with "an input port and an output port" has an input port and a separate output port.	Claims 7, 11, 14, and 15 ("random access memory") Claims 8 and 14 ("random access memory means having an input port and an output port.") '121 patent, Figure (showing random access memory (frame store 22) as having separate one-way arrows going into and out of the frame store).

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				<p>frame store 22 to convert the video data to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein.”), 4:16-18 (“As a new frame of video data is transferred from frame store 22 to disk store 24 ..., both the full resolution and the quarter resolution copy are transferred.”), 4:28-31 (“[F]rame store 22 repetitively accesses stored video data to generate ... output video data frames representing the stored image.”), 4:41-44 (including: “[F]rame store 22 receives a full resolution frame of video data from disk store 24 and outputs a continuous television image in digital data form in response thereto.”), Claims 1-15</p> <p><i>Prosecution History:</i> 2/24/87 Prelim. Amendment, pp. 7-8 (<u>Paper 25</u>); 1/4/88 Office Action (<u>Paper 26</u>); 4/29/88 Amendment, pp. 8-9 (<u>Paper 28</u>)</p>		
30.	P	<i>raster(s)</i> (claims 10, 15)	A predetermined pattern of scanning lines that provides coverage of an area; or a rectangular grid of pixels making up the video image.	<p><i>Prosecution History:</i> 2/24/87 Prelim. Amendment, pp. 8-10 (<u>Paper 25</u>); 4/29/88 Amendment, pp. 12-18 (<u>Paper 28</u>); 10/7/88 Amendment, pp. 5-9 (<u>Paper 30</u>)</p>	A pre-determined pattern of scanning lines that provides substantially uniform coverage of an area	Col. 3:57-63 (“In any event, out of a 525 line NTSC frame of data only about 484 lines represent video data. Because of the two dimensional nature of a video image a quarter size image defined by video data having one-fourth the spatial resolution of a full size image requires one-sixteenth the storage capacity of a full size, full spatial resolution image.”)
31.	P D	<i>external source</i> (claim 12)	“External source” means a source of video images outside of the image store.	<p><i>121 patent: Figure</i> (depicting “Video Input”); <i>Detailed Description:</i> 2:65-3:1 (“[D]igital electronic still store system 10 ... is shown as including a video input circuit</p>	A source located outside of and at a separate physical location from the physical location of the other	Col. 8:15-24 (claim 12) (“A video still store system comprising: an external source for supplying a plurality of full size image data sets representative of corresponding full size

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				<p>12. The video input circuit 12 may be another electronic still store system, a TV camera, or some other source of video data from which one or more frames of a video image may be captured.”, 3:44-68 (describing the frame store component of the system, including: “[F]rame store 22 ... is coupled ... to receive video data representing a frame of a video image ... from ... input A-D”), Claims 1-15</p> <p><i>Prosecution History:</i> 2/24/87 Prelim. Amendment, pp. 11-12 (<u>Paper 25</u>); 1/4/88 Office Action (<u>Paper 26</u>); 4/29/88 Amendment, pp. 8-9 (<u>Paper 28</u>)</p>	components of the video still store system.	<p>images; an image store for storing said full size image data sets, and for storing a like plurality of reduced size image data sets representing a plurality of reduced size images, each of said reduced size image data sets corresponding to one of the full size image data sets”)</p> <p>Col. 2:65-67 (“video input circuit 12 may be another electronic still store system, a TV camera, or some other source...”).</p> <p>Col. 3:12-19 (“An input analog-to-digital (A-D) converter 14 is coupled to receive an input video signal provided by the video input circuit 12, which typically includes video signal processing circuitry that prepares the signal for conversion by the A-D converter 14. The A-D converter 14 converts the input video signal to a digital form which is suitable for handling and processing by digital circuitry.”)</p> <p>File History, Paper No. 25, at 11 (“an external source input for receiving from an external source full size image data sets”) (application claim 28)</p> <p>File History, Paper No. 28, at 13-14 (amending application claim 28) (“an external source for supplying a plurality of full size image data sets representative of corresponding full size images”)</p>
32.	P	<i>simultaneous; simultaneously</i> (claims 10, 12,	At the same time.	‘121 patent: <u>Abstract</u> (including:	At the same time	Col. 1:30-38 (“For example, it might be

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		13, 15)		<p>“[G]enerating a quarter sized copy of each newly received image frame and storing both together on ... disk”); <u>Summary of the Invention</u>: 2:1-5 (“[I]ncludes an image store for storing therein a plurality of frames of video images with both a full spatial resolution copy ... and a reduced spatial resolution copy ... of each image being stored”); <u>Detailed Description</u>: 4:16-24 (including: “As a new frame of video data is transferred from frame store 22 to disk store 24 for more permanent storage, both the full resolution and the quarter resolution copy are transferred.”), Claims 1-15</p>		<p>desirable to create a special effect with multiple images or an editor may wish to view and compare several images at the same time for the purpose of selecting those images which will be used in a television broadcast. However, each of the several images which are to be simultaneously displayed must first be read from the disk store as full size images and then reduced for insertion into the multi-image display.”)</p> <p>Col. 1:51-54 (“Taylor et al discloses a still store system in which multiple images may be accessed and reduced in size for simultaneous display as discussed above.”)</p> <p>Col. 1: 68-Col. 2:1 (“...simultaneously viewed for scanning or editing purposes”)</p>
33.	P D	<p><i>respective selected groups of storage locations</i> (claims 13, 15)</p>	<p>“Respective selected groups of storage locations” (claims 13, 15) means storage locations, chosen by the system, for storage of full size and reduced size image data sets.</p>	<p><i>‘121 patent</i>: Abstract; 2:1-5, 4:16-24, Claims 1-15</p> <p><i>Prosecution History</i>: 4/29/88 Amendment, pp. 15-16, 19 (<u>Paper 28</u>) (including: “Applicant’s size reducer 26 is bidirectionally coupled only to his frame store 22, and is responsive to the frame store to supply a reduced size image at such time as only a full size image is stored in the frame store. In addition, Applicant’s frame store 22 then supplies both the full size image and its corresponding reduced size image back to his disc store 24 for storage together. Subsequently, the full size images individually ... or any number of the selected plurality of the reduced size images are</p>	<p>In two separate locations, i.e., one for full size images and one for reduced size images.</p>	<p>Col. 8:56-59 (claim 13) (“storing both the data sets of the plurality of full size images and the data sets of the corresponding plurality of reduced size reproduction images in respective selected groups of storage location”)</p> <p>Col. 10:18-21 (claim 15) (“storing both the data sets of the plurality of full size images and the data sets of the corresponding plurality of reduced size reproduction images in respective selected groups of storage locations”)</p> <p>Col. 4:19-24 (“Since the quarter resolution copy is represented by only one-sixteenth the</p>

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				returned for storage in the frame store 22, whereupon such re-stored images can be repeatedly read out.”); 10/7/88 Amendment, pp. 4-7, 11 (<u>Paper 30</u>) (including: “[B]ulk memory means which stores both size images”)		data of a full resolution copy, the communication and storage of the quarter resolution copy imposes only a small burden on both system operating time and extra storage space requirement within disk store 24.”)
34.	P D	<i>selectively accessing ... and ... simultaneously</i> (claims 13, 15)	“Selectively accessing . . . and . . . simultaneously” (claims 13, 15) means that the system performing the claimed method determines whether to access from the storage locations in bulk memory a full size image, and whether to access from the storage locations in bulk memory a plurality of reduced size images simultaneously, and then accesses those images.	See Construction 35. citations	There is the ability to choose (i.e., select) any one of the full size images and any one of the reduced size images and access both at the same time.	File History, Paper No. 32, at 3-4 (examiner amending the claims to include “and” instead of “or” and “and a data set representing one” of the corresponding plurality. The examiner also amended what issued as claim 13 to add a comma before simultaneously). File History, Paper No. 32, at 4 (examiner amending the fourth element of claim 15 (pending claim 31) and changing the fifth element of claim 15 from “retrieving <i>the</i> plurality” to “retrieving <i>a</i> plurality of reproduction images.”) File History, Paper No. 34, at 2 (“Applicant ... thanks the Examiner for the amendments suggested by him by telephone interview of October 27, 1988 and entered via his Examiner’s Amendment of November 7, 1988.”).
35.	P	<i>selectively accessing from the storage locations a data set representing one of the plurality of full size images, and a data set representing one of the corresponding plurality of the reduced size reproduction images, simultaneously</i> (claim 13)	See Construction 34. for “ <i>selectively accessing ... and ... simultaneously</i> ” “Data set representing one of the corresponding	See Construction 32. regarding “simultaneous” Also: ‘121 patent: <u>Abstract</u> (including: “16 reduced size images are displayed	See “selectively accessing...and...simultaneously”	See intrinsic evidence cited for “selectively accessing...and...simultaneously”

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	<i>selectively accessing from the storage locations a data set of one of the plurality of full size images, and one of the sets of the corresponding plurality of the reduced size reproduction images simultaneously</i> (claim 15)	<p>plurality of the reduced size reproduction images, simultaneously” (claim 13) means data for a given number of the plurality of reduced size images. Data for the first sixteen of some larger number of reduced size images is an example of such a data set.</p> <p>“Accessing...simultaneously” (claims 13, 15) means accessing multiple items at the same time, i.e., as a set as part of a single operation.</p>	<p>simultaneously without the time delay associated with the retrieval and size reduction of 16 full size images.”); <u>Background of the Invention</u>: 1:30-38 (“For example, ... an editor may wish to view and compare several images at the same time However, each of the several images which are to be simultaneously displayed must first be read from the disk store as full size images and then reduced for insertion into the multi-image display.”), 1:50-54 (“U.S. Pat. No. 4,302,776, ... discloses a still store system in which multiple images may be accessed and reduced in size for simultaneous display as discussed above.”); <u>Summary of the Invention</u>: 1:64-2:1 (“[S]ystem in accordance with the invention rapidly generates and outputs for display ... a still image frame comprising a plurality of selectively positioned, reduce size images which may be simultaneously viewed”), 2:8-11 (“The frame store is operable ... to receive from the image store and store a plurality of reduced spatial resolution image frames.”), 2:32-37 (“[S]ystem can rapidly assemble an array of 16 reduced size images ... operator may view the reduced size images simultaneously ... of some or all of the stored images within the image store”), 2:44-51 (including: “[A]n operator ... may compile lists of randomly selected image frames for simultaneous viewing as an array of reduced size images.”); <u>Detailed Description</u>: 2:62-64 (“[A] digital electronic</p>		

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			<p>still store system 10 for rapidly assembling as a single image frame an array of reduced size images”), 4:45-67 (describing operation of the browsing mode of the invention, including: “CPU 16 commands disk store 24 to output reduced resolution image data which is selectively positioned in frame store 22 for viewing in one of 16 reduced size image positions ... which fits within a normal full size image.”)</p> <p><i>Prosecution History:</i> 4/29/88 Amendment, pp. 15-23 (<u>Paper 28</u>) (including: “[I]n Applicant’s system, it is the frame store 22 which is accessed to provide the image output for display, further use, etc. ... [T]he frame store 22 has two modes of access; first, it receives and stores a full size image, which then is repeatedly read out from the frame store 22; or second, it receives and stores all (or part of) a plurality (e.g., 16) of reduced size images, which then are all (or partially) repeatedly read out from the frame store 22 simultaneously as a single mosaic That is, in the second mode, all of the stored, reduced size images are outputted for display simultaneously in a single video picture, each in its assigned two-dimensional location in the picture raster.”; “Claim 17 ... further specifies that multiple sets of second resolution pixel data are accessed from selected groups of memory locations in the second memory...to allow simultaneous read out and display of the multiple sets of data ... in a single composite mosaic. These features</p>		

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				<p>are also not taught or suggested by Taylor et al.”; “Likewise, Claim 29 include steps of ... storing both the full size data sets and the reduced size data sets ..., and selectively accessing either, one of the full size data sets or (all) of the reduced size data sets simultaneously.”); 7/22/88 Office Action (<u>Paper 29</u>); 10/7/88 Amendment, pp. 4-8, 12 (<u>Paper 30</u>) (including: “Regarding the [§ 112] rejection ..., applicant has deleted the word “either” ..., and added a comma (,) ..., thereby clarifying that the accessing is done to one of the ... full size images, <u>or</u> to the reduced size reproduction images in a set simultaneously. Thus the confusion is believed removed.”); 11/7/88 Interview Summary Record (<u>Paper 31</u>); 11/7/88 Notice of Allowability (<u>Paper 32</u>); 12/21/88 Amendment Under 37 CFR 1.312 (<u>Paper 34</u>)</p> <p><i>Cited References:</i> ‘776 patent, Fig. 21, 3:39-45, 3:53-4:11, 4:45-49, 12:23-43; Boyd article</p>		
36.	P D	<p><i>means responsive to said random access memory means for selectively generating one of said corresponding reduced size versions from the respective full size image in said random access memory means, and for transferring the video pixel data representing and [sic] the corresponding reduced size version back to the contents of said random access memory means</i> (claim 7)</p>	<p>This is a means plus function claim element pursuant to 35 U.S.C. § 112 ¶ 6. The claimed functions are “selectively generating one of said corresponding reduced size versions from the respective full size image in said random access memory means,” and “transferring the video pixel</p>	<p><i>‘121 patent: Abstract</i> (including: “[G]enerating a quarter sized copy of each newly received image frame”); <u>Figure</u> (depicting a “Size Reducer” that interfaces with a “Frame Store”); <u>Background of the Invention</u>: 1:34-61 (describing the prior art method of browsing where “each of the ... images ... must first be read from the disk store as full size images and then reduced for insertion into the multi-image display”); <u>Summary of the Invention</u>: 2:17-20 (“[A]n</p>	<p>This is a means plus function element under 35 U.S.C. § 112 ¶ 6. The function is “selectively generating one of said corresponding reduced size versions from the respective full size image in said random access memory means” and “transferring the video pixel data representing the</p>	

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			data representing the corresponding reduced size version back to the contents of said random access memory means.” The structures disclosed in the ‘121 patent that perform the claimed functions are the size reducer 26 and CPU 16.	image size reducer coupled to produce a quarter size reduced spatial resolution image in response to a full resolution image stored by the frame store,”); <u>Detailed Description</u> : 4:1-7 (“A size reducer 26 is connected to be controlled by data from CPU 16 Size reducer 26 is operable to receive video data from frame store 22 to convert the video data to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein.”), Claims 1-15 <i>Cited References</i> : ‘776 patent generally, describing size reducer, including Figs. 5-16 and accompanying text; ‘264 patent, 2:12-18, describing size reducer. <i>See also</i> Construction 38. regarding “CPU”	corresponding reduced size version back to the contents of said random access memory means.” The ‘121 patent does not describe corresponding structure for performing this function.	
37.	D	<i>size reducing means responsive to said random access memory for directly receiving said video pixel data stored in said random access memory means...</i> (claim 8) <i>size reducing means responsive to said random access memory for directly receiving said video pixel data stored in said random access memory means...</i> (claim 14)	This element sufficiently recites structure and is not subject to 35 U.S.C. § 112 ¶ 6.	<i>See</i> Construction 36. citations	<u>Claim 8</u> : This is a means plus function element under 35 U.S.C. § 112 ¶ 6. The function is “directly receiving said video pixel data stored in said random access memory means representing said full size image at said first resolution” and “reducing said image to the reduced size image at the second lower resolution” and “reducing said image to the reduced size image at the	

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				<p>second lower resolution,” and “supplying said reduced size image at said second resolution directly back to said random access memory means in a second group of memory locations therein.”</p> <p>The ‘121 patent does not describe corresponding structure for performing this function.</p> <p><u>Claim 14:</u></p> <p>This is a means plus function element under 35 U.S.C. § 112 ¶ 6. The function is “receiving said video pixel data stored in said random access memory means representing said full size image at said first resolution,” and “producing reduced size pixel data representing the reduced size image at the second lower resolution,” and “supplying said reduced size image at said second resolution to said random access memory means in a second group of memory locations therein.”</p>	

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					The '121 patent does not describe corresponding structure for performing this function.	
38.	P	<i>means for selectively transferring from said second store directly to said first store either video data representing [one] of the plurality of video images corresponding to the selected raster size, or video data representing a plurality of reproductions at the selected fractional-size of said selected raster size (claim 10)</i>	This is a means plus function claim element pursuant to 35 U.S.C. § 112 ¶ 6. The claimed function is “selectively transferring from said second store directly to said first store either video data representing [one] of the plurality of video images corresponding to the selected raster size, or video data representing a plurality of reproductions at the selected fractional-size of said selected raster size.” The structure disclosed in the '121 patent for performing the claimed function is a CPU 16.	<i>'121 patent: Abstract</i> (including: “[S]ystem stores and selectively outputs video image data defining a plurality of signal frame still images.”); <i>Figure</i> (depicting “CPU” interfacing with “User Console”); <i>Detailed Description</i> : 3:34-39 (“A [CPU] 16 formed from a Z80 microprocessor is connected to receive operator commands from a user console 18.”)	This is a means plus function element under 35 U.S.C. § 112 ¶ 6. The claimed function is “selectively transferring from said second store directly to said first store either video data representing one of the plurality of video images corresponding to the selected raster size, or video data representing a plurality of reproductions at the selected fractional-size of said selected raster size.” The corresponding structure is the microprocessor/CPU.	
39.	D	<i>size reducer means for receiving from said memory the stored one of said size image data sets, and for producing and returning to said memory the corresponding one of said reduced size image data sets (claim 12)</i>	This element sufficiently recites structure and is not subject to 35 U.S.C. § 112 ¶ 6.	See Construction 36. citations	This is a means plus function element under 35 U.S.C. § 112 ¶ 6. The function is “receiving from said memory the stored one of said full size image data sets” and “producing and returning to said memory the corresponding one of said	

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					reduced size image data sets.” The ‘121 patent does not describe corresponding structure for performing this function.	
40.	P	<i>means responsive to said memory for displaying the output image as a raster scanned video display</i> (claim 12)	This is a means plus function claim element pursuant to 35 U.S.C. § 112 ¶ 6. The claimed function is “displaying the output image as a raster scanned video display.” The structure disclosed in the ‘121 patent for performing the claimed function is monitor 30.	<i>‘121 patent: Figure</i> (depicting “Output Processor” flowing to “Monitor” in the system or “Studio Equipment” outside the system); <i>Summary of the Invention:</i> 2:22 (“[A] monitor for viewing output video images”); <i>Detailed Description:</i> 4:34-40 (“Output processor 32 ... for forming a television signal in a standard format, ... can be used to drive a monitor 30 for viewing of the output video image ... The analog video signal form may also be communicated to studio equipment for further use, broadcasting or storage.”), Claims 1-15	This is a means plus function element under 35 U.S.C. § 112 ¶ 6. The claimed function is “displaying the output image as a raster scanned video display.” The corresponding structure is a monitor.	Col. 4:34-38 (“Output processor 32 is a conventional video signal output processor, for forming a television signal in a standard format, which can be used to drive a monitor 30 for viewing of the output video image by a system monitor.”)

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